



Binghamton-Johnson City
JOINT SEWAGE BOARD



Eugene Hulbert, Sr.
Luke Day
Edward Crumb

Kenneth E. Kinsman
Annette Testani
John Chauncey

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(via U.S. Mail and upload to <www.regulations.gov>)

Water Docket
U.S. Environmental Protection Agency
Mailcode: 28221T
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

RE: Docket ID No. EPA-R03-OW-2010-0736
Comments on the Draft Total Maximum Daily Load ("TMDL") for the Chesapeake Bay

Dear Sir or Madam:

We appreciate the opportunity to submit these comments on the draft Total Maximum Daily Load for the Chesapeake Bay ("TMDL") posted September 24, 2010, the corrected Executive Summary also posted September 24, 2010, and Notice of Availability published in the Federal Register September 22, 2010 [75 Fed. Reg. 57,776 (Sept. 22, 2010)]. As further described below, our communities are already actively participating in the restoration of the Chesapeake Bay ("Bay") watershed to the extent that, over the past decade, capital upgrades in the \$70 million range have been made to our Facilities and, under next year's budgets approved for our Facilities, our ratepayers will collectively pay in 2011 some \$4.25 million more per year in operating and maintenance costs than was spent in 2005 – an 87% increase over seven fiscal years.

After adoption, this TMDL will constitute a fundamental economic development tool for the benefit of the Bay shoreline jurisdictions. We support reasonable, cost-effective efforts to restore the Bay, in proportion to the relative burdens each jurisdiction places on the Bay and proportionate to the relative benefit each jurisdiction receives from the Bay. Nevertheless, in the absence of clear evidence of excessive pollution from an upstream jurisdiction burdening the Bay, the TMDL should not be structured in a punitive way that essentially sacrifices the economic vitality of remote upstream/headwater jurisdictions for the benefit of Bay shoreline jurisdictions.

As described in detail below, we believe that the TMDL is not approvable in the form presently posted. Some requirements in the TMDL are not achievable within the limits of technology. Error correction and additional information and documentation are required, as well. Some aspects of the TMDL do not appear to have been fully researched or developed, and the TMDL itself has not been peer-reviewed. Accordingly, the EPA should withdraw or refrain from implementing the TMDL in its present form.

Catherine P. Aingworth, Superintendent
Binghamton-Johnson City Joint Sewage Treatment Facilities
4480 Old Vestal Road, Vestal, New York 13850
Phone: 607-729-2975 Fax: 607-729-0110
Email: bjcwtp@stny.rr.com

Statement of Interest

Together with the Facilities’ Owners (the City of Binghamton and Village of Johnson City), our Board co-holds State Pollution Discharge Elimination System Permit NY-002-4414 (the “Permit”) for the Binghamton-Johnson City Joint Sewage Treatment Facilities (the “Facilities”) located in Vestal, New York. Our Facilities have been designed to accept and provide treatment at up to a 60 million gallons per day (“MGD”) peak 24-hour influent flow rate, and the Permit assigns us a 12-month rolling average 35 MGD maximum flow limit. Historically, our Facilities treat and discharge into the Susquehanna River from our designated outfall point in the annual average range of 17.4 – 23.8 MGD in furtherance of the public health and environmental protection needs of those using the 26,517 sewer connections within our 28.6 square mile service area encompassing 11 municipal or governmental districts which cover four [4%] percent of Broome County’s total land mass. Our Facilities are the largest of the 28 existing “significant” wastewater plants (as well as the largest of the total 55 wastewater plants [“WWTPs”]) in the New York State portion of the Bay watershed, contributing about 22% of the state’s total annual WWTP discharge into the Bay watershed.

According to the New York State Environmental Facilities Corporation (“NYS-EFC”), through May 1, 2010 the Facilities’ Owners have expended \$66,205,965.92 on a series of continuing “Phase III Improvements” to our Facilities, including addition of processes for enhanced nutrient removal such as denitrification – for which the EPA also provided a \$4.35 million grant – with a goal of achieving a design “final effluent” maximum concentration of 6 mg/L Total Nitrogen (“TN”) at a maximum monthly flow rate of 35 MGD. While making significant contributions to the well-being of the Bay watershed in this regard, our Facilities stand likely to be both greatly and adversely impacted by implementation of the TMDL.

Factual Errors in the TMDL

A. Our Design Flow Is Incorrectly Portrayed, Leading to Incorrect Wasteload Allocations (“WLAs”)

Our Facilities are mis-identified in the TMDL as the “Binghamton-Johnson City Joint Borough” WWTP and, beginning in Table 4-6 in Section 4, are mis-described as having a 20 MGD “design flow” upon which the WLAs proposed in the TMDL are based and, we suspect, EPA modeling – including the *Scenario Builder* program data input – is founded. An excerpt of our current Permit, as modified March 6, 2008, was attached to our October 29, 2010 letter, posted to the on-line Comment Docket as *Comment Attachment #145.1*, and shows that – based on our Facilities’ design capacity – we have been allotted a 35 MGD maximum flow on a 12-month rolling average basis by the New York State Department of Environmental Conservation (“NYS-DEC”). This error in the TMDL must be corrected.

When this error in design flow is corrected, our Edge of Stream (“EOS”) WLAs must be corrected as follows:

Total Nitrogen (“TN”): to 639,261 pounds/year EOS (from 182,734) in Appendix Q-1
to 217,440 pounds/year EOS (from 182,734) in Appendix Q-2
to 1,751.4 pounds/day EOS (from 1,478.4) in Appendix R-1

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Total Phosphorus (“TP”): to 170,470 pounds/year EOS (from 6,091) in Appendix Q-1
to 7,248 pounds/year EOS (from 6,091) in Appendix Q-2
to 467.0 pounds/day EOS (from 62.03) in Appendix R-1

Total Sediment (“TSS”): to 2,130,870 pounds/year EOS (from 913,668) in Appendix Q-1
to 2,130,870 pounds/year EOS (from 913,688) in Appendix Q-2

and the corresponding “delivered loads” must be corrected, as well. Without these corrections, the loadings portrayed in Appendix Q-1 compute to a 1.715 mg/L TN concentration and a 0.057 mg/L TP concentration for our Facilities at our permitted 35 MGD design flow, both of which concentrations are significantly less than what the EPA claims is the limit of technology (“LOT”) to be employed at the “high” and “full” backstop levels in Section 8 of the TMDL (which LOT claims are disputed, below).

B. Delivery Coefficients for Some WWTPs Are Higher in Comparison to Closer-to-the-Bay Point Sources

Computing from Appendix Q-1 by dividing the “delivered” annual loading by the EOS annual loading shows us that, within its Bay watershed modeling programs, the EPA has assigned our Facilities a 63.869% Total Nitrogen (“TN”) Delivery Coefficient and a 45.411% Total Phosphorus (“TP”) Delivery Coefficient whereas, for example, the Village of Endicott WWTP (issued SPDES Permit NY-002-7669) – which is approximately 9.5 nautical miles downstream from our outfall and, thus, *closer* to the Bay than we are – has been assigned a lower 61.962% TN Delivery Coefficient and a lower 45.404% TP Delivery Coefficient. Additionally, the Town of Chenango WWTP (issued SPDES Permit NY-021-3781) which is upstream from our WWTP, making the Endicott WWTP even farther downstream from it, has been assigned a higher 62.512% TN Delivery Coefficient and a higher 45.492% TP Delivery Coefficient than has been assigned to the Endicott WWTP. No basis for the assignment of the Delivery Coefficients is stated in the TMDL. Because it does not seem logical or rational that WWTPs further from the Bay could have higher Delivery Coefficients than those closer, it appears to us that errors are contained in Appendices Q-1, Q-2, and R-1 which must be corrected. Correspondingly, the loadings stated in Section 9 and these Appendices must also be corrected when the inaccurate Delivery Coefficients are replaced with the correct ones. (*The comment period’s shortness precludes us from a more in-depth analysis*).

C. Overall Allocations for New York Must be Revised Based on Correction of the Above Errors

Because our Facilities, which contribute about 22% of the total New York discharge from WWTPs, have been assigned an incorrect design flow (understated by approximately 43%) and appear to have been assigned incorrect Delivery Coefficients, not only must our WLAs be corrected, but it is also likely the case that the entire set of allocations for New York State is erroneous and must be corrected.

Scientific and Technical Issues with the TMDL

A. The 3.0 mg/L Maximum TN Effluent Limit Is Not Attainable as LOT for WWTPs in Upstate New York

The EPA claims that a 3.0 mg/L maximum TN effluent limit is the LOT for WWTPs. Nevertheless, the EPA provides no scientific or technical basis to conclude that this limit is, in fact, feasible or attainable in our Upstate

New York climate, especially considering that biological treatment processes “slow down” as the temperature of the influent decreases. In our case, we range from three to four months per year with influent temperatures less than 11 degrees Centigrade (“°C”). Over the past four winters, our lowest average monthly influent temperature has been 8.3°C, and the lowest daily influent temperature was 5.7°C. For the 12 months ending September 30, 2010, the arithmetic mean of our monthly average TN results is 6.12 mg/L, which is just slightly above the monthly design goal for our denitrification process. This past winter, our effluent maximum monthly average TN results were 7.20 mg/L for December 2009, 6.13 mg/L for January 2010, 6.35 mg/L for February 2010, and 5.93 mg/L for March 2010. Further, the following lend support for the proposition that denitrification (and corresponding nitrification) processes “slow down” in colder weather such that the “real world” LOT is nowhere near EPA’s claimed maximum 3.0 mg/L for TN:

<http://pubs.nrc-cnrc.gc.ca/rp/rppdf/s02-004.pdf> – *Development of Biological Nutrient Removal Technology in Western Canada*, *Journal of Environmental Engineering Science* [National Research Council of Canada], Vol. 1, 2002, pp. 33-43, Oldham [Stantec Consulting Ltd.] and Rabinowitz [Reid Crowther & Partners Ltd.] – concluding that production of a maximum 6 mg/L TN and 0.5 mg/L TP effluent has been shown to be feasible in cold weather climates of Western Canada. Given the moderating effect of the Pacific Ocean, the climatology of Western Canada has similarities to Upstate New York.

<http://www.nywea.org/clearwaters/pre02fall/312030.html> – *Pilot Biological Nutrient Removal, Clearwaters* [New York Water Environment Association], Vol. 31, No. 2, Summer 2001, Bodniewicz [Metcalf & Eddy] and Mahoney [NYC-DEP] – concluding that, in the New York City area’s climate (which is significantly warmer than Upstate New York’s on a year-round basis), there exists potential to produce an effluent in the range of 5-8 mg/L maximum TN. The report noted that, in all three pilot units studied, “significant problems arose with accurate DO [dissolved oxygen] control” and there were issues with reliable addition of methanol, a carbon source for denitrification. At our Facilities, we have also experienced these operational challenges, both of which present significant obstacles to translating theoretical and laboratory predictions into “real world” results.

http://www.dep.state.pa.us/dep/deputate/watermgt/wsm/wsm_tao/InnovTechForum/InnovTechForum-IIA-Gilligan_1.pdf – *Demonstration of Low Temperature Nitrification with a Short SRT*, *WEFTEC 2000*, Kos, Head, Oleszkiewicz, and Warakowski [Lotepro Environmental Systems & Services] – showing the reduction in nitrification rates and corresponding increase in solids retention time to achieve equivalent nitrification results in an activated sludge process at temperatures ranges from 7.5 – 20°C. “The ability of the conventional activated sludge process to nitrify is highly temperature dependent. At low winter temperatures, nitrification can be sustained only if the activated sludge process is operated at relatively high solids retention time (SRT) values”. Key findings reported (and summarized in Figure 5 on p. 7 of the paper) include observation of an 81-83% reduction of the nitrification rate at 10°C in nitrifiers grown at 30°C and 47-59% reduction of the nitrification rate at 10°C in nitrifiers grown at 20°C as well as the fact that, in all cases, reductions in the nitrification rate measured under actual facility conditions were greater (i.e., the operational nitrification rate was lower) than the “theoretical” reduction rates predicted by laboratory bench testing. This is a crucial point: scientific and engineering theories and laboratory “bench tests” most times cannot be replicated under “real world” conditions.

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http://www.chesapeakebay.net/content/publications/cbp_13136.pdf – *Nutrient Reduction Technology Cost Estimations for Point Sources in the Chesapeake Bay Watershed*, November 2002, Nutrient Reduction Technology Cost Task Force of the Chesapeake Bay Program – stating it was determined by the NRT Cost Task Force that it would not be feasible and in most cases non-cost effective to consider a level of implementation in New York greater than TN <8.0 mg/L and TP <2.0 mg/L, especially with respect to smaller plants discharging 0.5 MGD or less.

http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6V6C-516MRFK-7&_user=10&_coverDate=11%2F26%2F2010&_rdoc=1&_fmt=high&_orig=search&_origin=search&_sort=d&_docanchor=&view=c&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=74dfd4b6dcb30826839ebb30c26aa82b&searchtype=a – announcing a report to be published in the upcoming November 26, 2010 issue of the *Journal of Hydrology* (at pp. 507-514) on a study of biofilter columns in thermostat-controlled climate rooms (at 2, 7, and 20°C) to investigate the effect of low temperatures on nutrient removal, billed as concluding, “Unfortunately, nitrogen removal was poor.”

To the extent the TMDL contains unattainable standards and unachievable results, the TMDL is not approvable.

B. *The 0.1 mg/L Maximum TP Effluent Limit Is Not Attainable as LOT for WWTPs in Upstate New York*

Although the EPA claims that a 0.1 mg/L maximum TP effluent limit is the LOT for WWTPs, the EPA provides no scientific basis to conclude that this limit is, in fact, feasible or attainable in our Upstate New York climate, especially considering the effect of colder temperatures on biological treatment processes as discussed above. In the Canadian study cited above, the demonstrated feasible maximum “real world” TP effluent average in cold weather climates is five times higher than what the EPA claims to be the LOT in the TMDL.

Again, to the extent the TMDL contains unattainable standards and unachievable results, the TMDL is not approvable.

C. *The Chesapeake Bay Watershed Model Has Significant Issues, Errors, Omissions, and Biases*

We endorse the NYS-DEC’s concerns and criticisms of the Chesapeake Bay Watershed Model (“CBWM”) stated at pages 9 and 37-45 of the New York Draft Phase I Watershed Implementation Plan (“WIP-I”). The EPA has failed to make public a final suite of modeling source code, data inputs and result outputs, nor – despite our express request – has the corresponding code and data for the new *Scenario Builder* programming been made publicly available. As stated in our October 29, 2010 letter (on-line Comment Docket *Comment Attachment #145.1*), we believe that this failure/refusal to provide public access violates the *Administrative Procedure Act* and renders any attempt to adopt or approve the TMDL faulty.

The **CBWM is not calibrated to and does not reflect New York’s actual water quality (“WQ”)** at Towanda, Pennsylvania. The EPA’s “single reactor” approach to the Susquehanna River basin and northernmost Bay by treating the river and Bay sub-segments CB1TF1 and CB1TF2 (consolidated segment CB1TF) as a “single reactor” from Cooperstown, New York to beyond Havre de Grace, Maryland does not fairly reflect the reality of New York’s non-impaired WQ and, correspondingly, mandates that New York “over control” its discharges with the result that New York will be required to resolve WQ issues and challenges from causes originating in

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other jurisdictions. The CBWM must be revised to correct these shortcomings by adding a sufficient number of “sub-shed” input points in New York so that New York’s superior WQ can be fully-calibrated into the model. In this way, the TMDL can be corrected and restructured so as to reflect corresponding requirements for those jurisdictions downstream from New York to be made fully responsible for addressing their respective contributions to the degradation of the Bay. If the EPA fails to do so, then the CBWM remains biased in a way that would permit jurisdictions downstream of New York to escape their proportionate duty to remedy their share of the Bay watershed’s WQ issues, and the TMDL may ultimately fail to achieve the desired results.

The CBWM does not reflect contributions of TN and TP from groundwater. The model’s documentation does not mention this source at all. Most importantly, the reliability of the CBWM must be seriously doubted because the model does not accurately account for groundwater as a conveying source of nitrates. The United States Geological Study (“USGS”) conducted a multi-year study of nitrate in groundwater throughout the Bay watershed. *See*, <http://walrus.wr.usgs.gov/infobank/programs/html/factsheets/pdfs/2003_0091.pdf>, *USGS Fact Sheet FS-091-03*, in which the USGS concluded, “An average of 48 percent of the nitrogen load in streams in the Bay watershed was transported through groundwater, with a range of 17 to 80 percent in different streams.” The USGS study also reports that, due to lag time, the median age of this groundwater is 10 years with 25 percent of the samples having an age of 7 years or less and 75 percent of the samples having an age of up to 13 years. Accordingly, the absence of data inputs for groundwater parameters is a substantial deficiency in the CBWM that renders it unreliable. Adoption of the TMDL based on unreliable modeling would be arbitrary and capricious.

The CBWM does not account for climate-related factors such as major wet weather events or make allowances for changing conditions in waterbodies due to seasonal weather patterns, storm effects, or climate change. The Susquehanna River is flood prone. In the six years from 2004 through 2009, our Facilities have experienced four federally-declared flood disasters – one exceeding a 500-year storm in 2006 that temporarily disabled the Facilities from meeting their public health and environmental protection missions. The TMDL is based on annual loadings divided by 365 days per year, with no provision for seasonal variations in loadings. Given the observance of summer “dead zones” devoid of DO in the Bay proper, we submit that such conditions require that the segment TMDLs for at least those segments must contain loading allocations tailored to the seasonal WQ needs of the Bay. To do otherwise would build-in a large risk that the TMDL will be ineffective in restoring the Bay. The TMDL must also make allowances for or grant variances in the event of natural disasters. Further, the TMDL cannot realistically expect to require Bay watershed communities to bear within 15 years the costs of undoing more than eight centuries of an ongoing natural erosion process. We know from history that some 800 years ago our region was inhabited by members of the Susquehannock tribe, from whom the Susquehanna River derived its name. In the native Algonquin tongue, the name “Susquehannock” means “people of the muddy river”. This highlights that it has been well-recognized throughout most of the past millenium that the natural geology of the Susquehanna River basin in the Bay watershed has consistently produced high sediment loadings that are then carried downstream by this major tributary river toward the Bay.

The results from the CBWM do not appear to reflect “credit” for improvements already made. The EPA said that the TMDL would afford jurisdictions credit for improvements made pre-TMDL final approval (*see*, Slide 16, EPA TMDL Update Webinar #5 [July 8, 2010]). We do not see where the modeling affords credit for the upgrade of our Facilities. Instead, as discussed above, the TMDL’s WLAs for our Facilities are punitive in that the WLAs for our Facilities are identical under both Appendix Q-1 (existing WQ scenario) and Q-2 (full

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federal backstop scenario). **Why?** There is no scientific or technical justification presented by the EPA for its requirement in the TMDL that, at our presently-permitted 35 MGD 12-month rolling average monthly design flow (which became effective March 6, 2008), we would have to treat to a maximum limit of 1.715 mg/L TN, 0.057 mg/L TP, and 8.576 mg/L Total Sediment effluent concentration. The CBWM does not appear to afford any credit for New York’s phosphorus ban law effective beginning August 14, 2010. (*As an aside*, if other Bay jurisdictions have not yet adopted a phosphorus ban like New York’s, they should immediately do so [or, alternatively, the EPA’s backstop allocations should so mandate]).

As to **actual nutrient usage on New York agricultural lands**, according to the Upper Susquehanna Coalition (“USC”) and the NYS-DEC, the CBWM model grossly overestimates fertilizer and nutrient application rates in New York (particularly on hayfields and other crop lands, etc.). According to New York’s draft WIP-I, when this was called to the EPA’s attention, the EPA chopped New York’s loading allocations. (If the EPA is to be consistent, we would expect that it will immediately increase New York’s overall loading allocations to cover the above-detailed increased WLA allocations for our Facilities which should be allowed based on our full permitted 35 MGD design flow).

With respect to **suburban land characteristics, New York is not as impervious as assumed**. USC and others estimate that the EPA’s CBWM overstates the factors for imperviousness by a magnitude of 2.5 in the New York portion of the watershed. Correcting this defect will also impact all of the Delivery Coefficients applied to New York’s point source dischargers.

With respect to **aerial deposition of TN** landing within New York’s portion of the Bay watershed, most originates outside of our state. Where does the CBWM identify – by source state and/or Canada – where the TN comes from that is deposited onto New York’s Bay watershed lands? Such identification is critical for purposes of being able to plan for and assess actions the EPA proposes to take under the *Clean Air Act* (“CAA”).

Concerning **open land animal impact**, the “background” settings in the CBWM model do not appear to be realistic and do not adequately reflect effect the extent of wild animal, bird and aquatic life. Because this background cannot be reduced or eliminated without an over-aggressive hunting and fishing program (which would be *extremely* anti-conservationist!), allocations to New York must not impinge on loadings from this source. The EPA’s explanation that the nutrients excreted/discharged by wildlife are “already in the environment” is fallacious: wouldn’t the same be true as to nutrients excreted/discharged by the human population and industries, not to mention sediment? What the EPA fails to account for is the “release” of these nutrients and sediments through the digestion and elimination by wildlife, which renders the nutrients and sediments more readily bio-available and subject to runoff/wash-off.

D. The CBWM Is Not Thoroughly Peer-Reviewed

The CBWM, especially the new *Scenario Builder*, is not adequately peer-reviewed. No peer-review reports for it are listed in Appendix B. Moreover, as an engineering tool, all modeling should be “peer-reviewed” in accordance with American Society of Civil Engineers’ (“ASCE”) standards, in addition to scientific reviews. So also should the TMDL be subjected to a peer-review. See, <<http://www.asce.org/Content.aspx?id=29723>> and <http://www.asce.org/uploadedFiles/Leadership_Resources/Peer_Review/ASCE-3282-PeerReview_bro.pdf> for a description of the ASCE’s policy, standards, and program for peer-review.

E. The EPA Provides No “Reasonable Assurance” that the TMDL Will Lead to Attainment of WQ Goals

The EPA gives no “reasonable assurance” that meeting the TMDL’s standards will lead to attainment of any particular level of WQ standards or promote the goals of Bay restoration within any of the 92 individual Bay segments covered by the TMDL. To be complete, the TMDL must specifically address and expressly state the applicable WQ standard and restoration goals for each of the 92 Bay segments covered by the TMDL. To the extent it does not do so, the allocations to New York and other jurisdictions are arbitrary because the specific standards and goals are undefined. A TMDL that cannot meet its intended goals, or does not clearly state its specific goals, serves no one. The TMDL provides no data or explanation indicating that the EPA has run CBWM scenarios sequentially removing the allocated loadings from identified source sectors (i.e., aerial deposition, WWTPs, MS4s/CSOs/stormwater, agriculture, rural/septic tanks, and open land/water) to demonstrate the extent to which the proposed WLAs and load allocations (“LAs”) to each source identified in the TMDL are sufficient to meet “end goal” WQ. Additionally, if the cumulative effect of removal of nutrients, sediment, and other pollutants is a change in the extent to which Bay tributary rivers and streams can metabolize and/or neutralize remaining contaminants and “self-clean”, the CBWM modeling does not reflect changing (i.e., reducing) Delivery Coefficients over time. (There may be unintended consequences, as well: for example, if major reductions are made in sediment loadings and resuspension, one might expect that the Bay and its tributaries may thereafter have a reduced ability to bind and settle-out phosphorus).

The EPA’s approach under the TMDL is somewhat inconsistent and paradoxical. On one hand, the EPA looks to the Bay watershed jurisdictions to develop WIPs to carry-out compliance with overall allocations the EPA has determined for each jurisdiction. On the other hand, the EPA assigns specific WLAs to point sources in Section 9 of the TMDL – to be effective even in the absence of EPA-determined deficiencies in the WIPs that would trigger a given menu of “backstop allocations” as described in TMDL Section 8. Moreover, the EPA condemns the draft WIP-Is of most of the jurisdictions on the basis that they fail to provide adequate or reasonable assurance of timely accomplishment, yet the EPA provides no such assurance as to the TMDL itself.

F. The EPA Provides No Technical Data to Justify Imposition or Effectiveness of “Backstop Allocations”

Nowhere in the TMDL does the EPA give any technical data to justify its menu of backstop allocations or provide any CBWM results that would demonstrate the effectiveness of each level of the backstop allocations. It is arbitrary and capricious as well as an abuse of discretion for the EPA to threaten backstop allocations in the absence of credible data demonstrating that the backstop allocations would produce any better WQ in a corresponding Bay watershed segment than the jurisdiction’s WIP-I.

According to the USGS, if all Bay watershed jurisdictions had WQ equal to New York’s, the Bay would not be impaired. Indeed, the CBWM estimates that **New York contributes only 4% of total TN delivered into the Bay, 5% of TP, and 4% of TSS**. Given the defects and reliability issues with the CBWM discussed and referenced above, it may actually be the case that New York’s real delivered loadings are even lower.

- As to WWTPs, the EPA’s proposed backstop allocations for New York lack a rational basis because, collectively, **the 28 significant WWTPs in New York are an insignificant source of TN (0.57% of total TN delivered into Bay), TP (1.13% of total TP delivered into Bay), and sediment (less than 0.5% of total sediment delivered into the Bay, and expressly acknowledged to be “insignificant” in**

the TMDL). Further, at the TMDL's assigned Delivery Coefficients for our WWTP, we would need to remove 1.6 pounds TN at EOS in order to prevent one pound of TN from being delivered to the Bay (at an assigned 63.9% Delivery Coefficient for TN); 2.2 pounds TP at EOS in order to prevent one pound of TP from being delivered to the Bay (at an assigned 45.4% Delivery Coefficient for TP); and 2.5 pounds Total Sediment at EOS in order to prevent one pound of Total Sediment from being delivered to the Bay (at an assigned 39.8% Delivery Coefficient for Total Sediment). Given New York's unimpaired WQ and given the extent of "over control" needed to achieve these levels of prevention of delivery into the Bay, the EPA's proposed backstop allocations mandate unattainable requirements, as discussed above, and inequitable reductions, as further discussed below.

- It must also be noted that the levels of proposed backstop allocations which would limit WWTPs to discharges "based on current flows" are unrealistic as to those WWTPs serving communities with combined sewers where both the annual flows and daily flows are subject to high variability in proportion to precipitation as well as ice/snow storage and snowmelt. Especially in consideration of the value that a WWTP which treats stormwater from a combined sewer collection system contributes to overall Bay watershed WQ, the EPA must amend its proposed backstop allocations to account for variations in "current flow" from year to year for those WWTPs treating stormwater, perhaps by basing such allocations on a 10-year rolling average adjusted, of course, in proportion to any actual expansion or upgrade in WWTP capacity or capability. In this way, backstop allocations that are unattainable or impossible to meet can be avoided, as can permit violations due to natural causes.
- Backstop allocations proposed for MS4s/urban stormwater/CSOs are also unrealistic and lack an EPA explanation of any basis for them or the effect that such allocations would have in each of the 92 covered segments in the Bay. It must also be noted that New York is a leader in control of this discharge segment as demonstrated by its recently updated "toolbox" of MS4 regulations, best management practices ("BMPs"), and publications providing technical assistance. The requirements for engineering reports to be submitted with all discharge applications, as well as requirements to provide engineer certifications during implementation and operation, provide a high degree of assurance that New York will successfully maintain and improve its already non-impaired WQ in relation to discharges from this segment, yet the EPA fails to recognize, accept, or credit the effect of these improvements recently added and, thus, now "on the books".
- As to agriculture, New York has an active program underway to add wetlands and riparian buffer zones to its agricultural lands in order to capture, retain, and/or treat nutrients and sediment. In acknowledgement that, on a proportionate basis, agricultural lands contribute large amounts of nutrients and sediment to the Bay watershed in New York as well as other state waterbodies, New York has made available more money to farms to protect watersheds and improve nutrient and sediment management than is presently being applied-for. A report released by the New York State Comptroller's Office within the past 10 days finds that available funds are going unspent, such that there is a high potential for carrying-out control measures on more of New York's agricultural lands within the Bay watershed. See, <<http://www.osc.state.ny.us/press/releases/oct10/102910f.htm>>. New York's Certified Agricultural Environmental Management ("AEM") Program, discussed in New York's WIP-I, constitutes a highly-effective means to implement BMPs and other practices that can further improve New York WQ in the Bay watershed.

- Because of the large percentage of forest, open water, and low-density developed land (together, comprising about 72-76% of the New York portion of the Bay watershed) as well as the fact that most of the TN deposited into the New York portion of the Bay watershed originates in Midwestern states and Canada, the NYS-DEC is powerless to enforce a solution or effectively address this loading source in its WIP-I. In order to be fair, the EPA must make allowances for this in the TMDL as well as in the two-year milestones. With respect to the backstop allocations, New York should not be required to "over control" in other sectors so as to compensate for this source of TN loadings which it cannot control. Thus, it is the federal government which must "step-up", strictly enforce the CAA as to aerial deposition of nitrogen originating from emissions of power plants and "smokestack industries" in Midwestern states, and the federal government must negotiate an effective, enforceable treaty with Canada to provide meaningful control of this source. The TMDL should clearly address the steps the federal government will commit to take in this regard as well as the specific impact to be achieved in reduction of these loadings. The EPA's commitment to exercising leadership and control on a federal basis to eliminate interstate pollution sources which contribute significantly to the nitrogen loadings in the New York portion of the Bay watershed should be measured, monitored, and subject to accountability measures expressly stated in the TMDL.

G. The EPA Provides No Environmental Impact Assessment for the TMDL

Given the geographical extent of coverage of the TMDL, in New York the *State Environmental Quality Review Act* ("SEQR") mandates an environmental impact assessment and, likely, a full environmental impact statement be prepared and be subjected to a full, coordinated review. This is an essential planning process that can safeguard against unintended consequences. Just as full SEQR compliance is mandatory for development of nutrient and sediment-trapping wetlands and other control measures in New York when funded with federal dollars by the U.S. Department of Agriculture ("USDA"), this TMDL (an EPA rulemaking) should not be exempt from a full and proper environmental impact assessment process, such as New York's SEQR process would afford. Indeed, as a tool governing land use, New York's WIP-I – as well as the TMDL itself – should be subjected to such a process. The goal of SEQR is to protect the environment by promoting a full understanding of the effect of a proposed action or development, as well as safeguard against unintended consequences.

As proposed, **the TMDL does not consider/address the carbon footprint/global warming impact** of TMDL implementation, which may be significant and detrimental to the Bay. Specifically, the TMDL may have the unintended consequence of increasing other forms of pollution, including greenhouse gases believed by many to contribute to the potential of global warming, which if unchecked would have dire consequences for the Bay and its shoreline population at present water's edge, especially if a rise in sea level occurs. For example, in order for our Facilities to denitrify, somewhere in the range of 182,500 gallons per year of the chemical methanol is used as a carbon source. Because it is a distilled wood product, methanol requires large amounts of energy to produce, as well as the harvesting of trees that once had a moderating effect on ambient carbon dioxide. Further, this chemical must then be transported by ship, rail and/or truck to reach its delivery point, thereby requiring further consumption of energy with attendant emissions, including airborne TN from the oxides of nitrogen in vehicular exhaust. Moreover, upgraded solids handling equipment and the biological aeration filtration ("BAF") system installed at our Facilities to remove sediment and CBOD, break-down ammonia through nitrification, as well as denitrify together consume large amounts of electricity. Between

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July 2007 (pre-BAF operation) and July 2009 (full BAF operation), our electricity consumption more than doubled (from 400,000 kwh per month to 1,005,115 kwh per month) and – owing to the augers, conveyors, centrifuges, large pumps, process air blowers, and compressors integral to these systems – the power "demand factor" of our Facilities has more than tripled (from 702.72 kw to 2,391.04 kw) over the same period. Much of the electricity consumed at our Facilities is generated through the burning of coal and fossil fuels. The TMDL provides no evidence that the EPA studied the overall environmental impact of upgrading a wastewater treatment facility such as ours to meet much more stringent TMDL and backstop standards in terms of the greenhouse gas and climate change effect from these emissions. **In the quest to save the Chesapeake Bay, is one form of pollution being "exchanged" for another?**

Throughout the Bay watershed, there are numerous power generation plants and other industrial operations which discharge cooling water warmer than ambient river temperature. Has the **cumulative effect of thermal discharges** of this type been studied? Neither the TMDL nor the draft CBWM documentation, though incomplete (and to the extent provided), includes any indication that this aspect of thermal pollution has been examined. Even though largely localized, the changes in habitat may have increasing downstream impacts that are detrimental to the Bay.

The TMDL does not consider or address its socioeconomic impact as to each of the affected 92 Bay watershed segments. This is a material part of a required environmental impact assessment in New York and is also an essential tool to evaluate whether the TMDL violates the constitutionally-protected equal protection rights of citizens and residents in each Bay watershed segment. In the New York portion of the Bay watershed, for example, human population declines in the 20% range have occurred between 1970 and 2000. Federal estimates indicate that the human population in the New York portion of the Bay watershed continues to decline, and 22% of this population subsist on incomes that are below the federal poverty line. Thus, the TMDL's discussion of increasing population is not applicable to the New York portion of the watershed. The TMDL cites some data regarding the economic impact of the Bay itself, but the economic discussion is incomplete because there is no mention of the economies of all Bay watershed communities or the socioeconomic impact implementation of the TMDL will have on them. Each of the sub-sheds draining or discharging into the affected 92 segments covered by the TMDL must be fully-evaluated for socioeconomic impact, including cost-benefit analysis in relation to direct economic benefit each segment derives from the Bay itself. Given our nation's heritage of honoring the principle of "equal protection" under the Constitution, federal laws and regulations, the TMDL must be fully inclusive of watershed-wide demographic and economic data analysis and point-out variations in conditions that exist and impacts that will result by region as well as within each of the 92 Bay watershed segments affected by the TMDL.

Present and projected future costs must be addressed alike. In the case of our Facilities, the Phase III Improvements upgrades, net of grant funding, have cost an average \$2,229 per connected property (or, equivalent dwelling unit ["EDU"]) in the City of Binghamton and \$5,576 per connected property/EDU in the Village of Johnson City as shown by the attached chart following this letter. Because of bonding, however, over the course of 30 years (running through 2040), even after crediting projected interest rate subsidies from the NYS-EFC, property owners in the Owner municipalities will be paying-out at least 2.25 times these principal amounts for the better part of two generations (i.e., over time \$5,015 will be paid per EDU in Binghamton and \$12,547 will be paid per EDU in Johnson City) for the capital costs of the upgrades alone, not to mention increases in the property owner's annual sewer bills, which presently reflect a gross 87% increase in

our Facilities’ annual operating and maintenance costs from \$4,947,856 in 2005 to \$9,256,034 under the 2011 budgets approved by the Facilities’ Owners (but not including future increases in operating and maintenance costs, which may double by 2017 [from 2010] and double again by 2025 [from 2017, i.e., quadruple from 2010] if the TMDL is adopted in its presently-proposed form, especially given the apparent need to add, operate and maintain process upgrades for enhanced phosphorus removal). Thus, if anything, it appears there will be a net reduction in real property values (and taxable value “tax base” for property tax purposes [upon which local school district and local government funding are based]) which will result from the “overburden” these long-term costs place on the tax-paying property owners and ratepayers we serve. It is submitted that, if the TMDL contained complete and proper socioeconomic analysis, it would be clearly shown that any small potential improvement in local real property values from further improvement of New York’s already unimpaired WQ in its portion of the Bay watershed will be offset many times over by the fiscal burden on real property values resulting from the heavy debt load and annual costs discussed above, thereby resulting in a net decrease in real property values within the New York portion of the Bay watershed owing to the TMDL. (*The comment period’s shortness precludes us from obtaining and presenting a more in-depth analysis*).

Policy Issues and Concerns Pertaining to the TMDL

A. The TMDL Is Not Uniform In Its Allowance for Future Growth and Development in the Bay Watershed

Based on statements made during the October 27, 2010 EPA-hosted meeting about the TMDL in Binghamton, New York, it appears that there may be unused, or excess, sewage treatment capacity for as many as five million people built-into the TMDL within the states of Maryland and Virginia. On the other hand, as discussed above, our Facilities were shortchanged by inclusion of a purported “design capacity” at only 57% of the presently permitted level at which our Facilities provide full tertiary treatment for denitrification. It would be arbitrary and capricious for the EPA to approve a TMDL based on “gerrymandered” excess sewage treatment capacity with the result that the opportunity for economic development in some Bay jurisdictions is fostered or enhanced while the growth and development of other Bay jurisdictions is stifled or choked-off. *Although the comment period’s shortness precludes us from preparing and presenting a more in-depth analysis*, “equal protection” principles would seem to dictate that an equivalent allowance for expansion or growth should be afforded all Bay watershed jurisdictions (not just the Bay shoreline jurisdictions) under the TMDL’s framework.

Further, from a policy standpoint, overdevelopment in the Bay shoreline jurisdictions should be addressed by requiring such Bay shoreline jurisdictions to bear the full incremental costs of corresponding WQ protection and Bay restoration for the affected segments of the Bay, even to the extent that such policy may create economic conditions which “push” population to exit those jurisdictions in favor of less densely developed jurisdictions such as New York.

B. A TMDL Based On Incomplete or Inaccurate Modeling Will Lead to an Inefficient Planning Process

Because, as discussed above, the CBWM is not finalized, contains errors, and does not correctly reflect all aspects of Bay watershed, there is no sound basis to finalize the TMDL. Our October 29, 2010 letter (on-line Comment Docket *Comment Attachment #145.1*) pointed-out that the EPA intends to revise its CBWM in 2011. *See also*, the June 11, 2010 Garvin letter attached thereto. Given the EPA’s intention to make near-term

changes in the CBWM, with the likelihood that TMDL amendments will result, attempting to plan steps to implement the TMDL within the Bay jurisdictions is akin to “aiming at a moving target”. A “start-stop-redirect-restart” approach is not an effective planning methodology: such an approach would encourage affected entities to “sit tight” until “the dust settles”. The “Carpenter’s Maxim” (“measure twice, cut once”) should inform the EPA’s course of action. Accordingly, promulgation of a final TMDL should be deferred until after all the necessary model corrections and refinements planned for 2011 are made. As discussed in Section III of our October 29, 2010 letter (on-line Comment Docket *Comment Attachment #145.1*), the EPA has retained unto itself full authority to take sufficient time to develop and finalize the TMDL, and it can renegotiate settlement agreements and consent orders in light of the enormity of the task and the number of corrections, revisions, and improvements that should be made as reflected by the many comments. In the interests of finalizing the best TMDL possible, the EPA should not rush merely to meet an arbitrary deadline.

C. Equity of Allocations as between Bay Jurisdictions is Essential

The federal government must be actively involved in ensuring that there is a “level playing field” throughout the Bay watershed so that citizens in different states (or citizens of different regions within the same state) are not disparately impacted by the TMDL (keeping in mind the relative contributions of the jurisdictions to the degradation of the Bay as well as the direct benefits that will accrue to each jurisdiction from restoration of the Bay). To do otherwise creates financial disincentives for industries and residents to locate or remain in the more stringently-regulated or impacted communities and, conversely, incentivizes siting decisions by industries into less stringently-regulated or impacted communities where, for example, their wastewater discharges would not be as well-treated to the high water quality standards necessary to meet the TMDL, or the Bay’s WQ needs.

Proportionately, the TMDL requires New York to do more than other jurisdictions given its remote “headwater state” status and the effect of the Delivery Coefficients whereby multiple pounds of nutrients or sediments must be removed at EOS in New York to prevent delivery of a single pound into the Bay (in contrast, the Bay shoreline jurisdictions have Delivery Coefficients close to 100% such that their respective removals and improvements translate nearly pound-for-pound in delivery prevention to the Bay). Further, because New York is already a leader and has unimpaired WQ at the Pennsylvania border, the EPA’s approach of allocating “by reduction from existing conditions” (as opposed to seeking to attain a defined WQ standard) requires New York to do more proportionately than other Bay watershed jurisdictions. The graphs at the bottom of the first page of the attached Upper Susquehanna Coalition (“USC”) Fact Sheet clearly illustrate that, on a strict WQ basis, there is a much smaller need for WQ improvement in New York in order to meet the TMDL’s allocations. Most importantly, these graphs are based on actual measured USGS WQ data at Towanda, Pennsylvania and, with respect to New York, do not reflect the metabolizing/neutralizing effect of the Pennsylvania and Maryland portions of the Susquehanna River which will result in further reduction of the eventual “delivered load” when the New York delivered water reaches the Bay. Therefore, when “Delivery Coefficients” are taken into account, significantly larger reductions are required of New York at EOS than would be needed to meet the WQ standards required at entry to the Bay under the TMDL. As a result, the TMDL requires the New York portion of the Bay watershed to perform, and bear the cost of, work needed to meet other Bay jurisdictions’ obligations to the Bay (whereas, as noted above, some 22% of the human population in the New York portion of the Bay watershed subsists below the federal poverty line, and New York receives no corresponding direct economic benefit from the Bay).

D. The EPA’s TMDL Allocations Do Not Appear to Reflect a Unit Area Loading Analysis

The attached memorandum regarding unit area loadings prepared by the USC provides a detailed analysis of unit area loadings within the Bay watershed. Did the EPA take into account unit area loadings in developing the TMDL? (The TMDL does not contain any such discussion). If so, did the EPA include adjustments for both human population density AND animal life density (agriculture and wild [aquatic and terrestrial])?

E. The EPA’s TMDL Watershed Implementation Plan Approach Puts “the Cart” before “the Horse”

The usage of Watershed Implementation Plans (“WIPs”) to carry-out the TMDL is an established practice. However, in most cases – as pointed-out in Section I of our October 29, 2010 letter (on-line Comment Docket *Comment Attachment #145.1*) – WIPs are developed after a TMDL is finalized. In this case, not only did the EPA require Bay watershed jurisdictions to develop their draft WIP-Is before the draft TMDL was released, but the EPA has announced further requirements for jurisdictions to develop WIP-IIs in 2011 after the CBWM is revised and, in all likelihood, the TMDL (if finalized under the proposed schedule) is amended. The EPA’s approach in this matter, which the EPA claims to be the result of litigation against the agency, may have the unintended consequence of INVITING further litigation that may only serve to divert time, energy, and human/economic resources AWAY from the ultimate objective of restoring the Bay. **Multiple years of uncertainty and delay may result from legal challenges to the TMDL** if adopted as presently proposed (clearly, based upon review of the on-line comments posted to date, it appears many grounds exist on which such challenges might be pursued). Wouldn’t it be better in the long run to take the time now to properly design and plan implementation of the TMDL rather than “regulate by litigation”? Is the EPA pursuing a strategy of using the courts in the case of this TMDL as a means to avoid changes in political leadership or the perceived “whims” and “shifting priorities” of the respective Executive and Legislative branches of the federal government and Bay watershed jurisdictions? If the Bay watershed jurisdictions were not made “necessary parties” in the litigation resulting in the consent orders calling for a Bay TMDL to be developed by May 1, 2011 as well as the settlement agreement calling for a Bay TMDL to be developed by December 31, 2010, did the EPA exceed its authority by purporting to bind non-party Bay jurisdictions via such litigation to what it now seeks to require via the WIPs?

Like the TMDL, the New York draft WIP-I does not identify any funding sources for carrying it out (perhaps the NYS-DEC should “be bold” in its final WIP-I and call on federal government to provide at least 80% of the cost of restoring the Bay in line with the Chesapeake Bay Executive Council’s 2005 financing proposal (discussed below) as well as President Obama’s declaration of the Bay as a “national treasure”?). Neither the TMDL nor the WIPs can self-implement.

We support NYS-DEC’s call for modeling corrections and improvements as outlined in the New York draft WIP-I, and we call on the EPA to expressly and fully address each and every comment and criticism by NYS-DEC of the Bay watershed modeling and the TMDL process followed by the EPA.

Nevertheless, we are concerned that the New York draft WIP-I which, as observed in our October 29, 2010 letter (on-line Comment Docket *Comment Attachment #145.1*), has not yet entered a public comment period, “unlevels the playing field” and sacrifices the economic vitality of our Binghamton-Johnson City Joint Sewage Treatment Facilities’ service area by requiring significantly enhanced denitrification of us that is not required by

NYS-DEC of other significant New York WWTPs in Bay Watershed, so we support the EPA’s criticism of the New York draft WIP-I to the extent that the EPA objects to the NYS-DEC’s proposed assignment of widely varying nitrogen discharge limits to WWTPs and, instead, calls on New York to maintain a “level playing field”. In the absence of specific climate or operational differences, or disproportionate local contribution to degradation of the Bay, all New York significant WWTPs of 0.5 MGD or larger should be regulated to the same uniform standard so as not to impose an inequitable financial burden on certain “target” communities (for example, those served by larger wastewater treatment facilities) without requiring similar participation by the same sectors in other Bay watershed communities. Nevertheless, the EPA should not blindly require NYS-DEC to force a “one size fits all” set of requirements uniformly on all Bay watershed territories within NY’s jurisdiction (i.e., certain all-rural counties can better participate/contribute as to agriculture/open-space BMPs, while counties with urban lands can contribute via WWTPs/MS4s/CSOs), so we do support that some flexibility should be afforded to state governments for good cause to vary the specifics of their implementation plans based on differences in the characteristics of communities and counties, as long as the New York WIP and NYS-DEC administration and/or enforcement of an EPA-mandated TMDL are not carried-out in a way that places an excessive burden on some sectors and/or communities without fairly distributing the responsibility for meeting the goals to be achieved. To do otherwise creates financial and practical disincentives for industries and residents alike to locate or remain in the more stringently-regulated communities and, conversely, incentivizes siting decisions by industries into less stringently-regulated communities where, for example, their wastewater discharges would not be as well-treated to the high water quality standards necessary to meet either the TMDL goal or the Bay’s needs.

We also believe that the NYS-DEC has unrealistic expectations for what our Facilities’ denitrification upgrade – contracted by the Facilities’ Owners to meet an average monthly maximum 6 mg/L effluent TN standard – will produce. Our “real world” experience shows us that meeting the contracted-for standard (which is what the Permit requires) is not without significant challenges, especially given seasonal variations in influent temperature as outlined above.

Because the draft WIP-I has not been opened for public comment yet, nor has a corresponding SEQR process begun, the EPA is – in essence – requiring New York to violate its own environmental protection laws by compressing the time for development and submission of the WIP-I to the EPA before the TMDL is finalized.

EPA’s commentary on New York’s draft WIP-I to the effect that “reasonable assurance” is lacking for the performance and effectiveness of New York’s WIP-I efforts rings hollow. New York’s exemplary environmental stewardship and non-impaired WQ at the Pennsylvania border should be given full consideration. New York’s historical performance and “good deeds” with respect to environmental matters should count for far more than the mere words contained in a draft document. The NYS-DEC has consistently pursued high WQ standards and – as we know from first-hand experience – has not hesitated to pursue criminal complaints, consent orders, and other enforcement means to preserve and protect our local WQ. As mentioned above, the NYS-DEC has taken the lead in updating its stormwater management “toolbox” and MS4 regulations, including tough new mandated engineering requirements in the planning, implementation and operation stages. In sum, New York’s overall course of conduct with respect to the Bay watershed and other areas of the state should afford the EPA more than adequate assurance that New York will continue to meet its WQ obligations to the Bay watershed.

F. There Are Limits to EPA's Authority to Adopt the TMDL and Compel Watershed Implementation Plans

It is arbitrary, capricious, and contrary to law for EPA to approve a TMDL that contains allocations that one or more of the subject jurisdictions believe are technologically unachievable within the schedule laid out in the draft TMDL. It is also our understanding that the EPA lacks legal authority to approve a TMDL imposing a schedule on Bay jurisdictions. We have also been informed that the EPA's legal authority to compel Bay jurisdictions to adopt WIPs before final TMDL is issued is questionable. Generally, "implementation plans" are written after a TMDL is finalized. This is so all components of the TMDL are considered and implementation can be carried-out in a coherent manner. In this TMDL promulgation process, however, the EPA required the jurisdictions to draft their WIP-Is before the TMDL was even publicly available and to finalize their WIP-Is before the EPA promulgates a final TMDL.

G. EPA Must Consider Pollution Sources in the TMDL as well as Where Benefits from Clean-Up Result

As a matter of public policy, it seems fairest that those Bay shoreline jurisdictions which pollute more must "do more" to restore the Bay. We do not accept or agree with the proposition – stated by an EPA representative at the October 26, 2010 WWTP Stakeholder's meeting in Elmira, New York – that "it's too big of a 'lift'" for Maryland and Virginia to remove at the same EOS percentages as the TMDL requires of New York.

Further, because New York receives no direct economic benefit from the Bay, and in light of its lower Delivery Coefficients, New York's required contribution to Bay restoration should be proportionally less provided, of course, that New York's WQ is maintained. Alternatively, Bay shoreline jurisdictions such as Maryland and Virginia should provide compensatory payments to New York and other upstream jurisdictions which are required by the TMDL to proportionately "over control" local WQ for the benefit of the Bay. After all, given the direct economic benefit to the Bay shoreline jurisdictions cited in the TMDL (as well as the absence of any description of such benefits for the remote headwater Bay watershed jurisdictions), shouldn't the shoreline jurisdictions pay for the bulk of restoral costs? As discussed above, it is projected that our Facilities' service area will experience a decrease in real property values as a result of the TMDL.

New York's required contribution to TN reduction should be adjusted downward (or its overall allocations correspondingly increased) to the extent of aerial deposition from Canada unless the federal government negotiates a treaty that actually makes meaningful reductions in this source of nutrient loading to the Bay.

H. From a Policy Standpoint, the EPA Must Ensure Adequate Resources to Carry-Out the TMDL and WIPs

If the Bay is to be given proper attention and care as a "national treasure", then identification of adequate federal funding must be an integral part of the TMDL. Overwhelming costs will be required to restore and protect the Bay in a way befitting its declared "national treasure" status. The NYS-DEC estimates that implementation of the TMDL could cost in the range of \$2 - 6 billion within New York State alone, yet the State of New York is in a fiscal crisis and is cutting back spending throughout all state government agencies. The Bay watershed is a very small portion (13%) of New York's total land mass. We do not expect, and we do not believe that the federal government can realistically expect, that New York State and local governments can devote the resources necessary to effective TMDL implementation, administration, and/or enforcement without substantial new federal funding provided for this purpose.

I. The EPA Did Not Comply with the Administrative Procedure Act In This TMDL Process

The EPA did not comply with the federal *Administrative Procedure Act* by making all underlying calculations (including computer program source code and computer-generated calculations) publicly available. *See*, Section I in our October 29, 2010 letter (on-line Comment *Docket Comment Attachment #145.1*) pointing-out that the underlying basis for the TMDL is not yet complete, thereby clearly indicating that the TMDL itself is not yet complete, so plainly the TMDL is not approvable in its present form. The EPA's water quality planning, management and implementation regulations mandate that public access and opportunity to review all essential information must be provided. Specifically, the regulations for establishing TMDLs require that the "[c]alculations to establish TMDLs shall be subject to public review as defined in the State [Continuing Planning Processes]." *See*, 40 C.F.R. §130.7(c)(1)(ii). Despite our prior request, the *Scenario Builder* modeling program, which contains or performs many calculations that the EPA has used to develop the TMDL, has not been made available for public review. As a result, unidentified assumptions are incorporated into the TMDL. *See*, TMDL Section 8.3.2 and Appendix H.

J. The EPA Did Not Provide an Appropriate Comment Period In This TMDL Process

The EPA did not provide a public comment period of sufficient length considering the size and scope – as well as the anticipated impact – of the TMDL. *See*, Section II in our October 29, 2010 letter (on-line Comment *Docket Comment Attachment #145.1*) describing that, because the "Chesapeake Bay TMDL [i] is the largest, most complex TMDL in the country", [ii] will be used as a precedent-setting model for future nutrient reduction programs and TMDLs, and [iii] touches on many policy as well as legal issues, provision of adequate time for public input is vital and affords substantial benefits to both the EPA and the public. Our Board believes that the 45 days allowed has been insufficient under the *Administrative Procedure Act* (“APA”) to provide for meaningful, fully-informed public comment on the Bay TMDL by any person or entity, and did not conform to Executive Order No. 12866, providing that most rulemakings "should include a comment period of not less than 60 days."¹ As noted several places in this letter, we have not had adequate time to provide more detailed analysis and better-informed comments and suggestions.

Suggestions to Make TMDL Better

A. Do not enforce backstops for New York unless and until New York fails to meet its assigned WQ or required milestones.

B. As a part of the federal backstops, or otherwise, require Bay watershed jurisdictions that have not already done so in their WIPs to impose “common sense” LOT bans on TN and TP in lawn and other fertilizers, mandate the use of “slow release” fertilizers except in the first year of lawn seeding, and evaluate the results of such bans/mandates BEFORE “ratcheting down” on MS4s, CSOs, and WWTPs. Additionally, require that soil testing be required to justify “maintenance” fertilizer/nutrient spreading. Correspondingly, require jurisdictions that have not already done so in their WIPs to **impose “common sense” LOT bans on TP in detergents**,

¹ - Exec. Order 12866, 58 Fed. Reg. 51,735 (Sept. 30, 1993).

soaps, personal care, and cleaning products, and evaluate the results of such bans BEFORE “ratcheting down” on MS4s, CSOs, and WWTPs.

C. Provide Adequate Federal Funding and Assistance.

Meeting the objectives of President Obama’s declaration that the Bay constitutes a “national treasure” is a federal obligation. Accordingly, the federal government must lead this effort and demonstrate its commitment by providing adequate funding and assistance to the states and localities required to participate directly in the clean-up and restoration efforts. Provisions for adequate federal funding must be built-into the TMDL. Instead, as written, the draft TMDL would require the taxpayers and ratepayers of point source wastewater treatment facilities to unfairly bear the majority of the cost for Bay watershed restoration through the EPA’s emphasis on exercising control via the permitting process for point-source dischargers without building-in provisions for adequate federal funding and assistance.

In an effort to identify the financial resources essential for cleaning up the Bay, in December 2003 the Chesapeake Executive Council called for the creation of a “Blue Ribbon Finance Panel” to make recommendations for the effective funding and financing of the Bay clean-up effort. The Panel reached an early and strong consensus, however, that simply improving existing programs alone will not be sufficient. The Panel recognized that something more substantive and extensive would be required. The Blue Ribbon Finance Panel proposed that the Bay watershed jurisdictions create a “Chesapeake Bay Financing Authority”, capitalized by the federal and state governments, with the capacity to make loans and grants. Their conclusion was that the federal government should provide \$12 billion and the seven Bay jurisdictions together should contribute \$3 billion (in “2005 dollars”). Because of the interstate nature of such an entity, only the federal government could provide it a charter.

Other important federal assistance for carrying-out the TMDL should include:

1. Army Corps of Engineers – maintain/dredge-out dams and “deltas” along the Bay watershed tributaries on a routine basis; doing so maintains/maximizes “trapping capacity” of dams and minimizes resuspension of sediments and bound pollutants, especially in ice jam and major storm events.
2. USDA – provide increased financial and technical assistance to Soil & Water Conservation Districts and farms.
3. Department of Housing and Urban Development – provide direct grants (akin to Community Development Block Grants) to local governments in the Bay watershed for stormwater control, management, storage/infiltration, and/or treatment programs as well as “smart growth” and “smart development” planning practices.
4. EPA and Department of Energy R&D Funding – the federal government must take the lead in sponsoring R&D programs to drive advances in technologies and practices (present and future)

so as to promote the best environmental quality of the Bay (and beyond), including:

- a. for WWTPs - process improvements for enhanced nutrient removal (even to the extent of developing "standard designs" with documented "real world" performance capabilities) and pilot programs (similar to those funded and carried-out through the National Research Council of Canada),
- b. sustainable technologies of general application (such as "air flush" toilets and self-composting toilets) as well as commercially-viable technologies (see G.2, below), and
- c. stormwater and greywater management, storage, and reuse practices.

D. Create or Foster a Bay-Wide Nutrient and Sediment Reduction or Offset Credit Trading Program

A federally-sanctioned credit trading program would provide opportunities to reimburse the costs of environmental improvements made by headwater states and would incentivize voluntary steps beyond minimum "compliance" levels. Thus, a Bay-wide nutrient and sediment reduction or offset credit trading program should be created or sanctioned by the EPA, or another federal agency, and included as an integral part of the TMDL. Because New York's portion of the Bay watershed is relatively small, it does not seem feasible that a viable credit trading program could be established within New York itself. Given that the benefits of any credit trading program would be realized on a Bay watershed-wide basis, we urge the EPA to include provisions to support creation of such a program as a part of the final TMDL. (In suggesting this, we do not mean to imply that the EPA or federal government should administer and control such a program: once sanctioned, we believe that private enterprise can carry-out and service the mercantile functions of such a program).

E. Require Chesapeake Bay Impact Analysis for All Bay-Watershed Planning and Zoning Actions

To address potential concerns about uncontrolled or over-development, the EPA should consider requiring via the TMDL or WIPs that all local planning, zoning and land use matters in the Bay watershed include a mandatory Chesapeake Bay impact analysis. Such analysis appears necessary to control growth in shoreline states to the extent that further expansion and development threatens the Bay's WQ. If the Bay is to be restored, the unbridled development described in the TMDL which has contributed in large part to the degradation of the Bay MUST be brought under control (even to the point of imposing federal backstops which restrict or limit growth in Bay shoreline jurisdictions that do not attain their assigned WQ standards or required milestones).

F. Take Adequate Time for the TMDL Process

To afford adequate time for the TMDL process and the correction/updating of the CBWM before the TMDL is finalized, the EPA should renegotiate consent orders and settlement agreements so that EPA has adequate time to follow the "Carpenter's Maxim" and pursue a "measure twice, cut once" approach. In this way, Bay watershed jurisdictions and local entities would not be faced with a repetitive and inefficient start-stop-redirect-restart planning process. Having the "end goal" clearly and firmly established before the TMDL is finalized best serves to promote efficiency and, as a result, the potential for success of the TMDL and overall effectiveness of the Bay restoration process.

G. Focus on “**alternative**” **BMPs, sustainable approaches, and developing technologies** to improve the Bay, including:

1. prevent over-fishing of filter feeders or other “looting” of the Bay’s ecosystems by commercial fishing and harvesting operations; if necessary, require a permitting and reporting system so that the status of harvesting limits can be monitored and enforced on a federal level, and
2. investigate development of algae-channels and other algae-based technologies for use as in-stream and in-Bay nutrient removal strategies as well as renewable energy sources; use R&D emphasis to make technology transferable to WWTPs and other nutrient sources that have algae issues (*see*, on-line Comment Docket *Comment Attachment #216.1* and http://articles.baltimoresun.com/2010-09-26/features/bs-gr-algae-nutrients-energy-20100920_1_algae-tiny-aquatic-plants-renewable-energy)

H. Have the TMDL provide that the **EPA must convene and facilitate mandatory cross-jurisdictional meetings** (for example, between New York and Pennsylvania; Pennsylvania and Maryland and Delaware; and West Virginia and Virginia) including corresponding elected federal, state, and local officials to promote common understanding, exchange information, identify and address concerns, as well as ensure all are “on the same page” and working harmoniously together with unified purpose toward TMDL implementation and Bay restoration, to share and learn from “best practices” and “success stories”, and in order to minimize counterproductive cross-border actions or initiatives.

I. As the TMDL is implemented, the EPA should also take steps to **more closely monitor the Bay watershed for the presence and impact of other pollutants or contaminants** such as the byproducts of pharmaceuticals (including antibiotics [human and agricultural]) and byproducts of personal care products, hormones (including agricultural growth hormones, synthetic estrogens or “estrogen mimics”), and other endocrine disruptors (such as Bisphenol-A and Phthalates). In large areas of the Bay watershed, exploitation of the natural gas deposits in the Marcellus Shale formation are being pursued via horizontal drilling combined with hydrofracturing using chemical-laced “proppant cocktails” containing dissolved or suspended hydrocarbons, trace metals and solids. Some of these dissolved solids may become assimilated into the tissues of fish and other aquatic life. Consideration should also be given to importation of non-native invasive or nuisance species “hitchhiking” on drilling rigs and other vehicles brought into the Bay watershed. Discoveries of hermaphrodite fish as well as studies documenting the gender imbalance of fish populations downstream from wastewater treatment plant outfalls are indicia of the negative effects on species indigenous to the Bay watershed. See, <http://www.baltimoresun.com/features/green/bs-gr-fish-20101102,0,4595447.story> for a very recent report of such a discovery in the Susquehanna River.

Conclusion

Restoring the Bay’s WQ and vitality is an important mission for the EPA and, as described above, our communities are heavily invested and we are actively participating daily in meeting this mission. Nevertheless, based on the points covered above, as well as others submitted through this abbreviated public comment

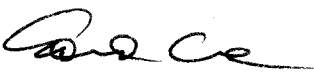
Comments on the Draft Total Maximum Daily Load ("TMDL") for the Chesapeake Bay

process, we believe it appropriate for the EPA to withdraw the TMDL, then correct, refine and calibrate the underlying models, "go back to the drawing board" and make needed revisions and updates, so as to come up with an improved TMDL regulatory proposal based on transparent, publicly-available, and supportable modeling grounded on accurate data inputs and computations, which is realistic, workable, and has a reasonable assurance of being successfully implemented to achieve the long-term goal of restoring the Bay. Should the EPA determine to proceed with implementation of a TMDL based on the present draft, however, the agency must take adequate time to review and fully address all comments received, so as to correct all errors, shortcomings, and omissions identified. We also favor an approach that permits the WIPs to be developed after the TMDL is finalized, so that each jurisdiction can properly follow its individual regulatory procedures and process, in order for the WIPs to completely correspond to and address the requirements of the TMDL, while focused on a firm, clear set of goals.

Because no TMDL is self-implementing, the EPA must continue to work with the President and Congress in order that adequate federal funding will be afforded those Bay jurisdictions, local governments and agencies which will carry-out the implementation plans after the TMDL is finalized. Finally, in order to promote compliance and accountability, the EPA should also consider targeting some available federal funding so as to be conditioned on the progress achieved as well as establishing a clearly-defined system/menu of consequences to penalize failure to achieve required WQ standards or milestones.

Thank you for considering these comments. Should you have any questions or require any further data or information from us, please do not hesitate to contact us via the means identified at the bottom of the first page.

Respectfully submitted,



Edward Crumb,
Chairman



Catherine P. Aingworth,
Superintendent

enclosures (p. 23) – Summary Chart of Phase III Improvements Capital Costs and Apportionment
(pp. 24-25) – Upper Susquehanna Coalition Fact Sheet (October 2010)
(pp. 26-28) – Upper Susquehanna Coalition Unit Area Analysis Memo (October 2010)

cc: Hon. Charles E. Schumer, U.S. Senator, New York
Hon. Kirsten E. Gillibrand, U.S. Senator, New York
Hon. Maurice D. Hinchey, Representative, 22nd Congressional District of New York
Hon. Michael Arcuri, Representative, 24th Congressional District of New York
Hon. David A. Paterson, Governor
Hon. Andrew Cuomo, Attorney General and Governor-Elect
Hon. Thomas W. Libous, NYS Senator, 52nd District
Hon. Donna A. Lupardo, NYS Assemblywoman, 126th District

(continued)

RE: Docket ID No. EPA-R03-OW-2010-0736

Comments on the Draft Total Maximum Daily Load ("TMDL") for the Chesapeake Bay

Ronald A. Entringer, NYS-DEC Division of Water (*via e-mail only*)

Peter B. Freehafer, NYS-DEC Chesapeake Bay Program Coordinator (*via e-mail only*)

Kenneth P. Lynch, Regional Director, NYS-DEC Region 7 (*via e-mail only*)

Sandra Lizlovs, P.E., Environmental Engineer II, NYS-DEC Region 7, Division of Water (*via e-mail only*)

Weixing Zhu, Ph.D., Director, Center for Integrated Watershed Studies, Binghamton Univ. (*via e-mail only*)

James Curatalo, Watershed Coordinator, Upper Susquehanna Coalition (*via e-mail only*)

Hon. Barbara J. Fiala, Broome County Executive (*via e-mail only*)

Charles H. McElwee, Executive Director, Broome Co. Soil & Water Conservation District (*via e-mail only*)

Hon. Matthew T. Ryan, Mayor, City of Binghamton (*via e-mail only*)

Hon. Dennis F. Hannon, Mayor, Village of Johnson City (*via e-mail only*)

Binghamton City Council (*via e-mail only*)

Johnson City Village Board (*via e-mail only*)

Angela B. Fagerstrom, Binghamton City Clerk (*via e-mail only*)

Thomas Johnson, Johnson City Clerk/Treasurer (*via e-mail only*)

Sewage Board members (*via e-mail only*)

Catherine P. Aingworth, Superintendent

Michele Cuevas, Board Secretary

John Perticone, Esq., Board Co-Counsel (*via e-mail only*)

Alfred Paniccia, Jr., Esq., Board Co-Counsel (*via e-mail only*)

Binghamton-Johnson City Joint Sewage Treatment Facilities

Summary of Costs and Grants

for NYS Clean Water Revolving Fund Project No.: C7-6201-03-01

(as of: May 1, 2010 [source: NYS Environmental Facilities Corporation])

Phase III Improvements (adds secondary and tertiary treatment for sediment removal, carbonaceous removal, nitrification and denitrification [no specific process for treating phosphorus, however])

Item Description	Item Total	% of Total Project Cost	City of Binghamton Share	Village of Johnson City Share
=====	=====	=====	=====	=====
Total Project Cost (to date)	\$66,205,962.92	100.00%	\$36,219,359.04	\$29,986,603.88
=====	=====	=====	=====	=====
EPA Grant (for denitrification)	\$4,350,000.00	6.57%	\$4,350,000.00	\$0.00
Appalachian Regional Commission Rural Water Grant	\$200,000.00	0.30%	\$200,000.00	\$0.00
DEC Grant (*)	\$954,635.85	1.44%	\$523,140.45	\$431,495.40
=====	=====	=====	=====	=====
Project Cost Net of Grants (**)	\$60,701,327.07	91.69%	\$31,146,218.59	\$29,555,108.48
=====	=====	=====	=====	=====
# of sewer connections (2008 study)	26,517 (***)		13,975 <i>In-City connections only</i>	5,300 <i>In-Village connections only</i>
Net Project Capital Cost per Sewered Property			\$2,228.71	\$5,576.44

- does not include additional cost of paying over time using bonding

NOTES:

* - DEC Grant was originally a \$1 million grant to the City of Binghamton from the Governor's 2003 Environmental Protection Fund for rehabilitation of the Plant's discharge outfall into the Susquehanna River. The Owners agreed to share and redesignate this grant for replacement of the roof of anaerobic sludge Digester No. 3 with a gas-capturing double-membrane cover (Digester No. 3 has a volume of approximately 1,000,000 gallons) [Remaining \$45,364.15 in available grant balance is expected to be reimbursed as this project (which is not yet completed) proceeds to conclusion].

** - grant monies depicted above do not include FEMA/SEMO grants/reimbursements due to flooding events impacting Facilities in September 2004, April 2005, June 2006, or November 2006, all of which were federally-declared disasters

*** - total number of sewer connections includes "Outside Users" in portions of the Town of Vestal, portions of the Town of Kirkwood, Binghamton University (Vestal Campus), the Town of Dickinson, portions of the Town of Union, the Town of Binghamton, the Village of Port Dickinson, the Town of Conklin, and portions of the Town of Fenton (listed by flow); only the City of Binghamton and Village of Johnson City are obligated on the project bonds, but Outside Users are charged a portion of debt service costs under a formula set forth in Outside User Agreements



UPPER SUSQUEHANNA COALITION (USC)

Chesapeake Bay Program TMDL Allocations in NY

USC MISSION:

The mission of the Coalition is to protect and improve water quality and natural resources in the Upper Susquehanna River Basin with the involvement of citizens and agencies through planning, education, coordination, funding, project implementation and advocating for our water resources.

TMDL DEFINED:

Utilizing a complex computer model, the Environmental Protection Agency (EPA) through the Chesapeake Bay Program (CBP) developed a total annual loading for nitrogen (N), phosphorus (P) and sediment, by state, that it considers to be the maximum quantities that the Bay can receive and meet water quality standards. This is called Total Maximum Daily Load or "TMDL". It is like a pollution diet for the Bay. See Table 1 below for a summary of current predicted loads and future TMDL load allocations for New York (NY).

Table 1. NY delivery loads based on model predictions

Nitrogen Delivered to Bay (lbs/year)	Phosphorus Delivered to Bay (lbs/year)	Sediment Delivered to Bay (lbs/year)	Year
10,531,401	799,272	326,503,712	2009 (Current)
9,150,560	631,709	323,801,485	2017 Allocation (60% of Goal)
8,230,000	520,000	322,000,000	2025 Allocation (Goal)
7,820,000	490,000	293,000,000	Additional Reserve Allocation (Goal)

The EPA mandated TMDL allocation and the determination of whether the state meets the requirements are solely based on the Bay Watershed Model and not on real water quality data. The Bay Watershed Model has never been tested for its accuracy.

NYs ALLOCATION:

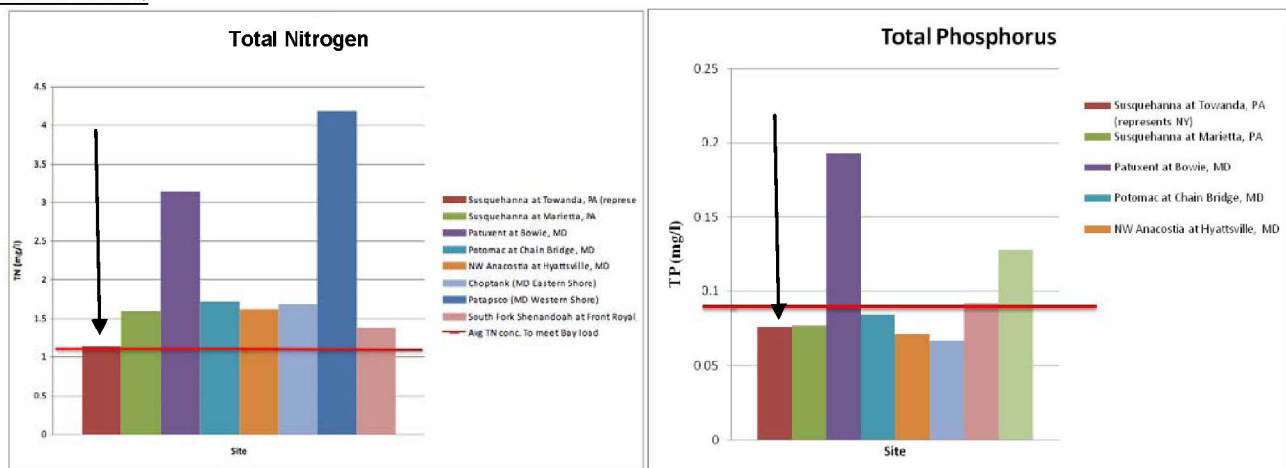


Figure 1 and 2. Measurements of average Total N and Total P concentrations were taken at the United States Geological Survey (USGS) gauging station in Towanda, PA and is represented by the dark red bar in each graph. The red line in the graph represents the average concentration needed to meet water quality standards in the Bay.

The EPA's draft TMDL is inequitable, unattainable, and threatens to be punitive to NY's economy, residents, and communities without markedly improving water quality for the Chesapeake Bay. Proposed mandates are in spite of the fact that NYS water is cleaner than any of the other Bay jurisdictions in the watershed. The above graph developed with USGS data shows that the N and P concentrations in NY's water (arrow above dark red bar) are below the water quality level needed for a clean Bay. If other states met this level of performance, there would be no need for a TMDL. Furthermore, EPA's proposed TMDL regulation imposes disproportionately heavier restrictions for water quality in NY in order to help other states meet their overall TMDL goal. Even if the other states achieve their EPA mandated allocations by 2025, their water would still contain more N and P (per unit volume) than NY has at the present. NY water has a very low nutrient content because the watershed is largely forested (70%), has a decreasing population, practices low intensity agriculture with a large land base, and implements progressive natural resource management programs.

IMPACTS TO USC COUNTIES:

The Department of Environmental Conservation (DEC) in partnership with the USC, Ag and Markets, the Natural Resources Conservation Service (NRCS), and other collaborators developed a reasonable plan for best management practices (BMP) implementation that considers current and future budget limitations for NY. The NY draft Watershed Implementation Plan (WIP) is based on approximately \$200M of technical and financial support that could be available for agricultural BMPs through 2025.

In contrast, the cost to implement EPA's backstops for reasonable assurance is estimated to be \$350M through 2025 for the Agricultural sector alone. When all sectors are considered, EPA mandated practices could reach \$6 billion dollars over the next 15 years. The EPA nutrient and sediment allocations and backstop mandates are unattainable and extremely costly with minimal nutrient reduction benefits and minimal impact on water quality in the Bay.

Agriculture is a leading industry in the Chesapeake Bay watershed and is important to the economy of our communities. Many farms will be unable to afford the increased financial burden that accompanies not only the implementation of the EPA mandated BMPs, but the on-going operation and maintenance. Many farms will have no choice but to go out of business. For the sake of water and air quality; landscape management; food, fiber, and energy production; and rural communities and economies, this is an experiment that NY can afford to take.

USC PROMOTES WATER QUALITY CONSERVATION:

To continue to promote clean water conservation in the Upper Susquehanna Watershed the USC districts use a multiple barrier approach to address nonpoint source issues. This approach addresses water quality issues at the source, across the landscape, focusing on the stream corridor, and is promoted programmatically through research, outreach and training.

The USC integrates 3 major focus areas: Wetlands, Streams and Agriculture.

Under the Umbrella of the Agricultural Team, which includes partners from NRCS, DEC, Ag and Markets, and major universities, the SWCDs promote several programs that include:

- Voluntary incentives through the Agricultural Environmental Management Program (AEM)
- Regulation through permitting of Concentrated Animal Feeding Operations (CAFO)
- Funding for implementation through the Agricultural Nonpoint Source Abatement & Control Grant Program (AGNP), and USDA Farm Bill Programs
- Support of "wall to wall" buffers through Graze-NY
- Commitment to proper nutrient management through rigorous conservation planner certification process
- Regular training for SWCD and NRCS Employees, and SWCD's Board of Directors
- Environmentally and Agronomically-sound guidelines from the Cornell University

This approach in a watershed with 70 percent forest cover, low intensity agriculture on a sufficient land base, and a decreasing population, leave little room for additional source reductions and place a disproportionately heavy burden on agricultural resources in NY.

Comparison of Unit Area Loadings & Required Removal Percentages

On July 1, 2010, the United States Environmental Protection Agency (EPA) issued a letter to Commissioner Peter Grannis of the New York State Department of Environmental Conservation (NYSDEC) that presented draft Total Nitrogen (TN) and Total Phosphorus (TP) allocations for New York State. The following is a short discussion, outlining and comparing the following items for each state within the Bay watershed and the District of Columbia (DC)

- Current edge-of-stream and delivered TN and TP loadings to the Bay
- Required removal percentages for delivered TN and TP
- Unit area loadings, based on current edge-of-stream and delivered loadings
- Unit area loadings, based on the draft TN and TP allocations

I. Current Nutrient Loadings, Draft Allocations, and Required Percent Removals

The following table summarizes the current (2009) TN and TP loadings (edge-of-stream and delivered) for each of the Bay states and DC. Also, the draft delivered TN and TP allocations are noted in this table.

TABLE 1: EXISTING NUTRIENT LOADINGS & TRIBUTARY AREAS					
	AREA (ACRES)	TN (LBS/YEAR)		TP (LBS/YEAR)	
		EOS	DELIVERED	EOS	DELIVERED
DE	450,086	4,703,337	4,181,314	342,478	315,660
DC	39,024	3,174,961	3,140,603	159,975	137,436
MD	5,823,192	70,292,000	52,363,404	4,323,008	3,353,583
NY	3,976,515	24,102,172	10,531,401	1,955,905	799,272
PA	14,314,407	181,223,005	106,297,233	8,809,278	3,951,854
VA	13,794,816	123,808,180	65,209,976	10,132,886	7,146,006
WV	2,275,925	23,490,575	5,770,201	1,889,028	912,063

The following table summarizes the draft delivered nutrient allocations for each state and DC. Also, the associated nutrient reduction percentages, required of each state and DC to realize the draft TN and TP loading allocations, are included in this table.

TABLE 2: DRAFT NUTRIENT ALLOCATIONS & REQUIRED REMOVALS				
	DELIVERED ALLOCATIONS (LBS/YEAR)		REQUIRED REDUCTIONS (%)	
	TN	TP	TN	TP
DE	2,950,000	260,000	29.45	17.63
DC	2,320,000	120,000	26.13	12.69
MD	39,090,000	2,720,000	25.35	18.89
NY	8,230,000	520,000	21.85	34.94
PA	76,770,000	2,740,000	27.78	30.67
VA	53,400,000	5,410,000	18.11	24.29
WV	4,680,000	750,000	18.89	17.77

II. Unit Area Loadings for Current Nutrient and Draft Allocated Loadings

Unit area loadings for current nutrient loadings are summarized in the following table. Unit area loadings are ratios of TN and TP loadings to the respective tributary areas of each Bay state and DC. The unit area loadings provide a simple means of comparing the relative nutrient loads per acre of tributary area. For this exercise, unit area loadings are expressed in pounds of TN or TP/year/acre.

TABLE 3: CURRENT UNIT AREA NUTRIENT LOADINGS (LBS/YEAR/ACRE)				
	E.O.S TN/AREA	DELIVERED TN/AREA	E.O.S TP/AREA	DELIVERED TP/AREA
DE	10.45	9.29	0.76	0.70
DC	81.36	80.48	4.10	3.52
MD	12.07	8.99	0.74	0.58
NY	6.06	2.65	0.49	0.20
PA	12.66	7.43	0.62	0.28
VA	8.97	4.73	0.73	0.52
WV	10.32	2.54	0.83	0.40

Unit area loadings for the draft allocated nutrient loadings are summarized in the following table. These unit area loadings are ratios of TN and TP allocations to the respective tributary

areas of Bay each state and DC.

TABLE 4: UNIT AREA NUTRIENT LOADINGS (LBS/YEAR/ACRE), BASED ON DRAFT ALLOCATIONS				
	E.O.S TN/AREA	DELIVERED TN/AREA	E.O.S TP/AREA	DELIVERED TP/AREA
DE	7.37	6.55	0.63	0.58
DC	60.10	59.45	3.58	3.08
MD	9.01	6.71	0.60	0.47
NY	4.74	2.07	0.32	0.13
PA	9.14	5.36	0.43	0.19
VA	7.35	3.87	0.56	0.39
WV	8.37	2.06	0.68	0.33

III. Findings

Based upon this cursory exercise, the following points are noted from the perspective of New York State.

1. New York State has the lowest unit area loading for current edge-of-stream TN and TP loadings of any of the states or DC. This speaks to better local water quality, in regards to nutrient concentrations.
2. New York State has the lowest unit area loading for current delivered TP of any of the states or DC. Besides West Virginia, New York State has the lowest unit area loading for current delivered TN of any of the states or DC.

In comparison, the unit area loadings for current delivered TP for Delaware and Maryland are 3.5 and 2.9 times that of New York State, respectively. Also, the unit area loadings for current delivered TN for Delaware and Maryland are 3.5 and 3.4 times that of New York State, respectively.

3. Based upon the draft TP allocations, New York State is being mandated to reduce its TP loadings by 35 percent. This percentage is significantly higher than that of any other Bay state or DC. For example, Delaware and Maryland are being mandated to reduce their TP loading by 17.6 and 18.9 percent, respectively.
4. With regard to the edge-of-stream nutrient loadings with the draft allocations realized, New York State will continue to have the lowest unit area loading for TN and TP loadings of any of the states or DC. In comparison, Delaware and Maryland would be allowed to discharge roughly twice the TP loading per acre than that of New York State. Similarly, Delaware and Maryland would be allowed to discharge 1.5 and 1.9 times the TN loading per acre than that of New York State.
5. New York State's current unit area loading for edge-of-stream TN loading will be lower than that of any state or DC upon realization of the allocated TN loading. Besides Pennsylvania, New York State's current unit area loading for edge-of-stream TP loading will be lower than that of any state or DC upon realization of the allocated TP loading.